From: Ohl, Matthew
To: Lisa Bradley
Cc: Exemption 6 Mark Hutson; Charles Morris
Subject: Pines Site Feasibility Study
Date: Wednesday, April 03, 2013 2:17:00 PM
Attachments: Feasibility Study Comments FINAL 4 03 2013 opt.pdf

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Good afternoon:
Please see the attached letter.
Thank you.

Matthew J. Ohl
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United States Environmental Protection Agency
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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
77 WEST JACKSON BOULEVARD
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April 3, 2013

REPLY TO THE ATTENTION OF:

SR-6J

Via Electronic Mail and Certified Mail
Return Receipt Requested

Lisa JN Bradley, Ph.D., DABT
Vice President and Senior Toxicologist
AECOM Environment
250 Apollo Drive
Chelmsford, Massachusetts 01824

RE: Pines Site, Pines, Porter County, Indiana
Administrative Order on Consent Docket No. V-W-04-C-784
Feasibility Study

Dear Ms. Bradley:

Thank you for providing the Feasiblity Study ("FS") dated November 2012 on behalf of Northern Indiana Public Service Company, Brown, Inc., Ddalt Corp., and Bulk Transport Corp (Respondents) as required by the Administrative Order on Consent. With this letter, the U.S. Environmental Protection Agency in consultation with the Indiana Department of Environmental Management, requests modifications to the FS in accordance with the enclosed comments. The Respondents shall submit the revised Feasibility Study fully incorporating the enclosed comments no later than sixty (60) days from the date of this letter.

If you have any questions regarding this matter, please contact me at (312) 886-4442 or ohl.matthew@epa.gov.

Sincerely,

Matthew J. Ohl

Matthew J. Ohl
Remedial Project Manager

Enclosure

cc via e-mail: Mr. Paul Kysel, President of PINES
Mr. Mark Hutson, Geo-Hydro, Inc.
Mr. Charles Morris, National Park Service

Enclosure

TECHNICAL REVIEW COMBINED COMMENTS ON "FEASIBILITY STUDY, PINES AREA OF INVESTIGATION AOC II DOCKET NO. V-W-'04-C-784" PINES AREA OF INVESTIGATION, TOWN OF PINES, NOVEMBER 2012

GENERAL COMMENTS

1. Throughout the FS report, it is mentioned that Yard 520 is regulated under IDEM; however, Yard 520 is still part of the Pines Site and is subject to actions under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). The FS needs to include alternatives to address the contamination that may be migrating from Yard 520 and other major fill areas, as these appear to be the primary source of groundwater contamination for the Pines Site.

2. The only soil alternative presented is Soil Alternative 1 – No Further Action. Yet within the FS report itself, discussion is made of an expanded background investigation (Appendix F) and a Residential Yard Confirmatory Sampling Plan (Appendix G). Based on current information and the need for additional sampling, "No Further Action" cannot be accepted as the *only* remedial alternative for the Pines Site. Alternatives to address a hypothetical residential yard must be included and refined as additional data is collected.

3. Many of the conclusions throughout the FS report use the background soil data; these data have not been accepted by EPA. The report will need to be revised with regard to soil alternatives once the new background soil data have been obtained. Additionally, EPA has requested residential yard-specific data in order to reduce uncertainty about the residential health risks at the site. Data from the proposed sampling described in Appendix G will need to be incorporated into the revised FS.

4. All of the specific comments seeking clarifications as to the scope of the alternatives in Section 7 must be incorporated into the description of alternatives in Section 8.

5. All of the cost estimates presented in Appendix D use lump-sum pricing. There is little information provided to evaluate the costs. Additional detail in the cost estimates, or

supporting text providing more information as to the assumptions used in developing the costs, should be provided.

6. Some residents of the Town of Pines have expressed concerns that the groundwater has not been sampled for most potential constituents of concern since 2006, only one round of sampling was conducted for radionuclides then, and from a limited sample set. As a future note, periodic groundwater monitoring is needed to verify that the concentrations are not changing.

7. The FS refers to "the presence of CCB-derived constituents above PRGs only in specific areas downgradient from larger areas of CCB fill." Provide a review of larger or deeper areas of CCB fill and how groundwater in these areas is monitored. If the groundwater in any of these areas is not monitored, provide a monitoring plan.

SPECIFIC COMMENTS

1. **Section 2.3.4.2, Page 2-18.** The sentence "These two wells are located in wetland areas that are unlikely to be developed, though such development in the future cannot be precluded" and the word "easily" from the following sentence must be removed from the FS as they are vague, do not add value to understanding the FS, and may be misleading to some readers.

2. **Section 3.2.1, Page 3-3.** Regarding the use of the MCLs and the Uranium Mill Tailing Standards (40 CFR §192) as applicable or relevant and appropriate requirements (ARARs):
    a. The uranium drinking water standards contained within 40 CFR Part 141 are potentially applicable requirements only for community water systems designated under § 141.26 (see 65FR 76708, 76748 (December 7, 2000)). The uranium groundwater standards contained within 40 CFR Part 192 are potentially applicable requirements only for the 24 Title I sites designated under Section 206 of UMTRCA.
    b. In general, because the MCLG is zero for the radionuclides included in 40 CFR Part 141, the MCLs for these radionuclides are potentially relevant and

appropriate requirements at sites with radioactive contamination in groundwaters that are current or potential sources of drinking water. In particular, the uranium MCL of 30 µg/L is a potentially relevant and appropriate requirement for groundwaters that are current or potential sources of drinking water that have any of the uranium isotopes as a contaminant of concern. Thus, for these radionuclides, the MCL concentration of 30 µg/L is generally used as the cleanup level for groundwater that is a current or potential source of drinking water, and is to be attained throughout the plume at the completion of the response action. If either uranium-234 or uranium-238 is a contaminant of concern in groundwaters that are current or potential sources of drinking water, and the site is not a Title I UMTRCA site, then the uranium UMTRCA standard under 40 CFR Part 192 of 30 pCi/L is a potentially relevant and appropriate requirement. Please note that this means both the uranium MCL (40 CFR Part 141) and the uranium UMTRCA (40 CFR Part 192) standards may be selected as relevant and appropriate requirements for addressing uranium contamination in ground water at the same CERCLA site. Since both standards establish levels of uranium in groundwater that are acceptable for drinking, EPA would expect that whenever the uranium UMTRCA ground water standard is a relevant and appropriate requirement, the uranium MCL will also be a relevant and appropriate standard. Selecting both the MCL and UMTRCA standards will ensure that the kidney toxicity and carcinogenic health effects posed by uranium are adequately addressed.

Additional information can be found in the guidance document "Use of Uranium Drinking Water Standards under 40 CFR 141 and 40 CFR 192 as Remediation Goals for Groundwater at CERCLA sites." Also, discussion of the soil cleanup standard of 40 CFR 192 should be added to Section 3.2.3 (Soil and Sediment).

3. **Section 3.3.1, Page 3-7.** Although Yard 520 may currently be in compliance with applicable IDEM regulations, this does not exclude Yard 520 from being addressed under CERCLA, as Yard 520 is the source of much of the groundwater impact at the Pines Site. Yard 520 is part of the Pines Site and, therefore, needs to be included under the alternatives provided in this FS report.

4. **Section 4.2, Pages 4-3, 4-4, and 4-5.** It has not been the intent of EPA to have the Respondents restore the groundwater quality as a result of contamination that is not site-related. However, the Respondents are responsible for restoring the groundwater to future beneficial use, as stated in Remedial Alternatives Objective (RAO) 3. The shallow aquifer at the Pines Site is ecologically vital, a current source of drinking water, and highly vulnerable to contamination. Therefore, it will not be reclassified to receive a lower level of protection. The Respondents should move forward with the goal to achieve RAO 3. EPA expects that groundwaters should be restored to their beneficial use. In addition, the following language must be included in this section without modification: "Groundwater in the surficial aquifer is currently used as a drinking water source and is highly vulnerable to contamination, as it is unconfined at or near the surface and is made up of materials having high transmissivities. The groundwater also discharges either directly or indirectly through drainage ditches to the Great Marsh and/or other wetlands managed for ecological purposes on federal lands. Specifically, such discharges occur within the Indiana Dunes National Lakeshore managed by the National Park Service. Therefore, the groundwater in the surficial aquifer is ecologically vital."

5. **Section 4.3, Pages 4-5.** Clarify how the Table 7 PRGs were developed. For example, the PRG for the sum of radium-226 and radium-228 should be 5 pCi/g consistent with 40 CFR 192.12(a). One purpose of this standard was to limit the risk from inhalation of radon decay products within homes built on land contaminated with radium.

6. **Section 4.3.1.2, Page 4-7.** As a note, EPA understands that the background threshold values (BTVs) presented in Table 7 are from the current background data set and that, currently, new background data are being analyzed. Table 7 is currently for reference only, since data used for the BTVs presented therein are currently not accepted by EPA. The revised FS will need to present the new background data, and the new data then used to calculate BTVs for the constituents of potential concern (COPCs) for the Pines Site.

7. **Section 4.3.1.3, Page 4-8, Paragraphs 5 and 6.** It is premature to say that "no further action is identified for soils within the Pines Area of Investigation." This analysis is based on the 27% coal combustion by-products (CCBs) scenario, which was formulated

by performing visual inspections at the Pines Site; however, no analytical data have been collected to represent residential risks from the Pines Site. This statement shall either be removed from the FS or revised to state that additional data are being obtained to properly formulate soil alternative(s) at the Pines Site. Additionally, the potential risks from the 27% CCB scenarios are compared to BTVs from a background data set that is not currently accepted by EPA (see SC #3). Please clearly state that the BTVs used in this draft FS report will most likely be revised in the future because new background data are being collected and analyzed. Finally, it is stated that, "Based on these results, no further action for soils/CCBs is recommended, and active remedial alternatives are not considered at this time." Again, this statement is premature and must be revised to state that additional sampling at the residential properties and analysis of new background data are currently being performed and will be used to present active remedial alternatives, if applicable.

8. **Section 4.5.1.1, Pages 4-10 and 4-11.** This section fails to identify the entire picture regarding Yard 520, as there are wells where the concentrations of boron are stable or increasing above 7.3 milligrams per liter (mg/L): MW-6, MW-7, MW-8, MW-10, and MW-11. All of these wells are on the boundary of Yard 520 and there is currently no method of preventing the groundwater from the Yard 520 Type II cell (North Area) from migrating north/northwest. It is premature at this time to exclude the area north/northwest of Yard 520 from remedial alternatives or the perimeter wells of Yard 520, as is suggested in the third bullet on Page 4-11. Although Yard 520 may be part of IDEM's Post-Closure program, Yard 520 is not excluded from action taken in accordance with CERCLA, as Yard 520 is one of the main sources of groundwater contamination at the Pines Site. The last bullet should be revised to include the mentioned wells (MW-3, MW-6, MW-8, MW-10, and TW-12) to be evaluated in the Pines FS.

9. **Section 6.3.1, Page 6-4 through 6-5**. The only technology retained for soil at the Pines Area of Investigation, and to be used for the development of remedial alternatives, is Soil Alternative 1 – No Further Action. Considering the expanded background investigation (Appendix F) and the Residential Yard Confirmatory Sampling Plan (Appendix G) that is to be performed, "No Further Action" cannot be accepted as the *only* remedial alternative

for the Pines Site. Furthermore, the impact CCB fill areas on groundwater must be addressed.

10. **Section 7.1.2.4, Page 7-3 and Figure 20**. Monitored natural attenuation (MNA) is proposed for the area east of Yard 520, but not for the portion of the area north of Yard 520 identified in Figure 11 as having cumulative risk-screening results above 1×10^{-6}. Consideration should be given to include the entire area with cumulative risk-screening above 1×10^{-6} in the MNA area, not only for this alternative but for all other alternatives which have the MNA alternative as a component.

11. **Section 7.1.2.6, Page 7-4 and Figure 22.** The text indicates that a barrier wall is to be constructed around the Type II cell (North Area) of Yard 520. Figure 22 shows that the barrier wall is to be constructed around three sides of the North Area of Yard 520. The text and figures need to clarify whether it is the intent to tie the barrier wall in with the existing clay wall installed between the North and South Areas of Yard 520.

    The description of the alternative must be expanded to indicate what type of groundwater recovery is anticipated from within the barrier wall.

12. **Section 7.1.2.7, Page 7-4.** This alternative should include an expanded discussion of how groundwater flow within the area of investigation (AOI) might be affected. A detailed analysis can be reserved until the design stage, but a preliminary analysis should be included. The concern is that constructing the partial barrier wall on only the east side of the Type II (North) Area of Yard 520 might increase the flow of groundwater, and contaminants it contains, to areas to the north of Yard 520. The description of the alternative should be expanded to indicate what type of groundwater recovery system is anticipated.

13. **Section 7.1.2.8, Page 7-5.** Alternative 6A and Figure 24 are not clear as to whether or not the recovery wells or interceptor trench are limited to the area defined by the three red dots on Figure 24 or are intended to cover the entire north boundary of Yard 520. A preliminary discussion of how the re-application of groundwater may affect overall groundwater flow in the AOI must be included.

14. **Section 7.1.2.9, Page 7-6.** A preliminary discussion of how the re-application of groundwater may affect overall groundwater flow in the AOI must be included.

15. **Section 7.2.1, Page 7-7.** As discussed in GC #1, at least one other soil alternatives, incorporating the already proposed additional background investigation and residential confirmatory sampling, with the option of developing additional soil alternatives, needs to be included in the revised FS.

16. **Section 8.2.1, Page 8-2 and Table 19.** Section 8.2.1 describes the threshold criteria to be eligible for alternatives selection. However, Table 19 gives scores for the two threshold criteria. This is contradictory, as the text in Section 8.2.1 indicates correctly that, to be eligible for selection, an alternative must meet the two threshold criteria. A Yes/No or Pass/Fail evaluation would be more appropriate.

17. **Section 9.2.4 and Table 19.** In the row regarding reduction of toxicity, mobility, and volume through treatment, an estimate as to the estimated mass reduction is given. This information is useful. However, this information is not included in the associated text in Section 8, and the methodology used to arrive at these numbers is not provided. The text needs to be revised to include the estimated mass reduction, and include a short discussion as to how the estimates were derived.

18. **Table 15.** Given the statements in the FS that boron levels are decreasing, a permeable reactive barrier should not be eliminated based upon the assumption that it would have limited effectiveness in treating boron. Furthermore, the characterization of the implementability of a permeable reactive barrier as difficult and the cost of its construction as high are also questionable for the shallow aquifer at the site. The permeable reactive barrier must be retained as an alternative in the FS.

19. **Appendix D, Cost Estimates for Alternatives 5A, 5B, 6A, and 6B.** These cost estimates include a cost of transportation and disposal of soils to a subtitle D landfill with a round trip of 200 miles. There is a landfill located in Argos, Indiana, about a 120- to

130-mile round-trip distance from the site. Either the cost estimate should be revised, or a rationale for the 200-mile round-trip distance provided.

20. **Appendix G, Page 1, Paragraph 1.** The first paragraph of Appendix G states that the appendix provides a plan for collecting surface/near-surface soil samples, if necessary, from residential yards. As noted in the review of the RI and the HHRA, the visual inspection process (VIP) used to characterize the percentage of CCBs in each yard focused only on the top 6 inches of soil. There is currently no information available regarding the depth of CCB placement in residential yards or the characteristics of CCBs potentially present at depths of greater than 6 inches below ground surface (bgs) in residential properties throughout the Pines AOI. The depth and areal extent of CCB fill has important implications for the FS and should be determined. Additionally, topsoil may have been placed on top of existing CCBs on the residential property within the top 6 inches. Consistent with standard HHRA methodologies, it should be assumed that subsurface soil may be brought to the surface as the result of future intrusive development activities in the area. Therefore, the residential yard confirmatory sampling plan (sampling plan) needs to be revised to incorporate characterization of subsurface soil within residential yards in the Pines AOI.

21. **Appendix G, Page 3, Paragraph 2.** The text states, "The potential risks and hazards under the chemical risk assessment are below background." This statement may be misleading and does not reflect the summary of the HHRA presented in the text of the FS. As noted in Section 2.2.1 of the FS, because individual residences have not been sampled and the HHRA instead relied upon CCB samples collected from the Municipal Water Service Extension (MWSE), it is possible that the concentrations of specific analytes at individual residences are higher than background. Therefore, Appendix G must be revised to more accurately summarize the results of the HHRA, including reference to relevant sections of the FS text.

22. **Appendix G, Page 3, Paragraph 3.** The document states: *For radium-226 and radium-228, the BTV is calculated as the sum of radium-226 and radium-228, as the background standard will be 5 pCi/g plus the sum of the radiums (40 CFR 192.12, USEPA, 1998),*

with a table of BTVs that follow. While "Sum of Radium-226 and 228" (in background) is appropriate to list as a BTV, "Sum of Radium-226 and 228 + 5" (background plus a cleanup standard) is not. "Sum of Radium-226 and 228 + 5" could be used as a basis for comparison to the 40 CFR 192.12(a) standard, or as a PRG, where the ultimate need for 40 CFR 192.12(a) as a relevant and appropriate requirement will be determined in the Record of Decision.

23. **Appendix G, Page 4, Paragraph 1.** This paragraph introduces the idea of collecting soil samples only at the three properties "calculated to have the three highest conservative maximum average percent suspected CCB." As noted in review comments on previous site documents, including the RI and HHRA, the VIP used as the basis for the CCB percentage calculations was conducted on a visual, subjective basis, albeit one with an established methodology. In other words, there has not been laboratory verification of the VIP results at individual residences. Appendix G should be revised to incorporate laboratory verification of the VIP results at individual residences. At a minimum, the laboratory verification should attempt to establish a correlation between VIP results and laboratory results (as is often done to correlate X-ray fluorescence [XRF] results with laboratory results). If such a correlation can be established, it may not be necessary to have laboratory verification of VIP results for all residences. Instead, the correlation can be used to "adjust" the VIP results to make them "laboratory-like." However, if a correlation cannot be established, then it may be necessary to collect soil samples from surface/near-surface and subsurface depths at each residence for laboratory verification.

    Also, the proposal to collect soil samples only at the three properties with the highest conservative maximum average percent suspected CCB is insufficient. This approach assumes that the CCB material at all properties is identical and that no property-specific variability is present. That is, the only thing that differentiates one property from another is the percentage of CCBs. However, as noted in Section 2.2.1 of the FS and in SC #16 above, the concentrations of specific analytes may vary across the range of residences in the Pines AOI. It will not be possible to investigate the potential cross-residence variability via collection of soil samples at only three residences. Additionally, the three properties proposed do not represent properties where there were 51% to 75% of

suspected CCB, although at least five properties listed on Table I-2 were in this category. Appendix G needs to be revised to include collection of soil samples from surface/near-surface and subsurface depths at each residence in the Pines AOI (allowing for access and other potential restrictions and limitations).

24. **Appendix G, Page 4, Paragraph 3.** The proposal to follow the methodology presented in the EPA's "Superfund Lead-Contaminated Residential Handbook" (Handbook) is not unreasonable (EPA 2003). However, as described in Appendix G, the proposed sampling methodology does not specifically address activity-specific locations at properties where residential exposure is known to occur. Such locations include driveways, gardens, and play areas (i.e., swing sets) at which residential receptors may be expected to be preferentially exposed to soil. As noted in Section 4.2.4 of the Handbook, "distinct play areas and gardens, if present, should generally be sampled separately as discrete areas of the yard" (EPA 2003) Appendix G must be revised to incorporate sampling of distinct play areas and gardens, if present, and driveways, if deemed necessary, separately as discrete areas of each residence.

25. **Appendix G, Page 4, Paragraph 4.** The document discusses sampling procedures, with residential survey unit sizes ranging from approximately 1,250 ft^2 (5,000 ft2 / 4) to 11,000 ft^2 (0.25 acres). The often-referenced 40 CFR 192.12(a) standard is applied to survey units of 100 m^2 (1,076 ft^2) or less, and typically in Region 5 a 5-point composite sampling for Ra-226 + Ra-228 is applied to survey units of 100 m^2 (1,076 ft^2) or less as well, following complete surface scanning of the survey units with field equipment, typically a Ludlum 2221 scaler/ratemeter with a 2"x2" sodium iodide (NaI) detector. Considering this and recent concerns from the citizens of the Town of Pines, the following provides an outline of the sampling procedure that should be performed:
    a. Residential lots should be divided into survey units of 100 m^2 or less, consistent with 40 CFR 192.12(a). Residential lots investigated should include those of interest to the PINES Group and the Town of Pines Council.
    b. Investigations should include playgrounds and other properties of interest to the PINES Group and the Town of Pines Council, where investigations would be

performed in a manner similar to the residential lots and be divided into survey units of 100 m^2 or less.

c. Each survey unit should have a gamma survey performed consisting of the following:
    i. 100% walkover of the survey unit with 1-meter transects, at a detector height of approximately 1" inch above the ground surface, using a Ludlum 2221 scaler/ratemeter with a 2"x2" sodium iodide (NaI) detector, calibrated to the 10 pCi/g radium block set located at the West Chicago REF site.
    ii. Gamma dose rate measurements at heights of 1-meter and 0.30-meter at points on a triangular grid, where the number of survey locations (N) and grid spacing (L) is determined using chapter 5 of MARSSIM (approximately 14 or 15 survey locations per 100 m^2). Gamma dose rate measurements should be made with a pressurized ion chamber or other detector type capable of dose measurements at environmental levels ("micro-R" or "micro-REM"); sodium iodide (NaI) detectors should be avoided for gamma dose rate measurements.
d. One 5-point composite sample shall be collected from each survey unit for COC analysis. Samples shall be collected to a depth of at least 18 inches at 6 inch intervals; sampling depth should accommodate the root depth of edible plants commonly grown by residents in the area, or otherwise determine the vertical extent of contamination. Refer to the next comment (#24) on specifics regarding the five-point composite sampling approach.
e. Additionally, it may be prudent to establish one or more Background Reference Areas with similar physical, chemical, geological, radiological, and biological characteristics as the residential survey units being evaluated, and non-impacted with regard to CCBs. The Background Reference Area(s) should be selected with consensus from local stakeholders such as the PINES Group and the Town of Pines Council. Additional information on radiological site investigations can be found in the "Multi-Agency Radiation Site Survey Investigation Manual" (MARSSIM) and the "Guidance -- Potential for Radiation Contamination Associated With Mineral and Resource Extraction Industries."

26. **Appendix G, Page 4, Paragraph 4.** The five-point composite sampling approach within the designated sections of the yard is acceptable; however, this paragraph states that aliquots will be collected from 0 to 18 inches bgs. The Handbook states that sample aliquots should be collected in 6-inch intervals: 0 to 6 inches, 6 to 12 inches, etc. This practice is commonly used in many residential sampling sites where composite sampling within the yard(s) is conducted. Any discrete samples (play areas, gardens, etc.) should also be collected in 6-inch intervals. Composited samples need to all be from the same depth interval. Additionally, the Handbook states that deeper sampling may be conducted to determine the total vertical extent of contamination. The total sampling depth does not need to be limited to 18 inches (see SC #21).

27. **Appendix G, Page 5, Paragraph 4.** The document provides an analytical list consists of COCs, including metals and radionuclide contaminants. "Lead" should be added as a chemical/metal. Uranium analysis should be specified to include "Total Uranium," "U-238," "U-235," and "U-234." Also, a holding time of 21 to 30 days may be required for radium-226 results. The analytical techniques used (ICP-MS, HPGe gamma spectroscopy, etc.) will likely provide results for metals and radionuclides beyond what is listed in the analytical list of COCs, and as a matter of completeness in the residential investigation, all of the common CCB metals, including lead and total uranium, should be reported and used in any residential area risk analysis.

28. **Appendix G.** The comparison of quadrant, as well as discrete area-specific, analytical results to analyte-specific BTVs is associated with uncertainty. Most appropriately, discrete samples, rather than the proposed composite samples, should be compared to BTVs. However, the proposed methodology (compositing five subsamples into a single composite sample), while potentially resulting in some dilution of discrete sample results, is acceptable. Nonetheless, Appendix G should be revised to include a discussion of the uncertainties associated with comparing composited results to BTVs and stipulate that the uncertainty discussion will be carried into a discussion of the site-specific sampling results. One possible way to evaluate the degree of potential dilution that may occur during compositing is to collect a discrete sample result, along with the primary

composite sample, from a percentage of quadrants and discrete areas sampled. For example, one of the five sample aliquots from a particular quadrant or discrete area could be randomly selected. This aliquot could be split, with one portion going for discrete analysis and the other portion being combined as part of the composite sample. Subsequent comparison of the discrete and composite results could shed light on the potential for and extent of any dilution occurring. Appendix G needs to be revised to discuss this and other potential options for quantifying the potential for and extent of any dilution occurring as a result of the compositing process.

Reference:

U.S. Environmental Protection Agency (EPA). 2003. "Superfund Lead-Contaminated Residential Sites Handbook." Lead Sites Workgroup. Office of Solid Waste and Emergency Response (OSWER) 9285.7-50. August. Available on-line at: http://www.epa.gov/superfund/lead/products/handbook.pdf

U.S. Environmental Protection Agency (EPA). 1998. "Use of Soil Cleanup Criteria in 40 CFR Part 192 as Remediation Goals for CERCLA sites." Office of Superfund Remediation Technology Innovation (OSRTI) and the Office of Radiation and Indoor Air (ORIA) 9200.4-25. February. Available on-line at: http://www.epa.gov/superfund/health/contaminants/radiation/pdfs/umtrcagu.pdf

U.S. Environmental Protection Agency (EPA). 2009. "Summary of Key Existing EPA CERCLA Policies for Groundwater Restoration." Office of Superfund Remediation Technology Innovation (OSRTI) and the Federal Facilities Restoration and Reuse Office (FFRRO) 9283.1-33. June. Available on-line at: http://www.epa.gov/superfund/health/conmedia/gwdocs/pdfs/9283_1-33.pdf

U.S. Environmental Protection Agency (EPA). 2001. "Use of Uranium Drinking Water Standards under 40 CFR 141 and 40 CFR 192 as Remediation Goals for Groundwater at CERCLA sites." Office of Emergency and Remedial Response (OERR) and the Office of Radiation and Indoor Air (ORIA) 9283.1-14. November. Available on-line at: http://www.epa.gov/superfund/health/contaminants/radiation/pdfs/9283_1_14.pdf

U.S. Environmental Protection Agency (EPA et al.). 2001 (update of August 2000 edition). "Multi-Agency Radiation Site Survey Investigation Manual (MARSSIM)." Office of Radiation and Indoor Air (ORIA) 402-R-97-016, Rev. 1. June. Available on-line at: http://www.epa.gov/rpdweb00/marssim/

U.S. Environmental Protection Agency (EPA). 2003. "Guidance -- Potential for Radiation Contamination Associated With Mineral and Resource Extraction Industries." Office of Radiation and Indoor Air (ORIA) Radiation Protection Division. April. Available on-line at: http://www.epa.gov/radiation/docs/tenorm/mineguide.pdf.